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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/563,590

03/01/2007

Enrique Pablos

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EXAMINER

LAO, MARIALOUIA

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/563,590	Applicant(s) PABLOS, ENRIQUE	
	Examiner LOUISA LAO	Art Unit 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 53-75 is/are pending in the application.
- 4a) Of the above claim(s) 68-75 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 53-67 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicants' election with traverse of Group I (product claims, 1-16, 25-37 and 42-51) in the reply filed on 10/17/07 is acknowledged. The traversal is on the ground(s) that the rest of the claims recite a statutory method, which Applicants amended.

Applicants' amended the claims by cancelling claims 1-52 in the reply filed 6/23/08. New claims 53-67 are drawn to process claims (Group I) ; while new claims 68-75 are drawn to product claims (Group II). The restriction requirement mailed 9/13/07 under 35 U.S.C. 121 and 372 is maintained. This application contains inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. Group I is drawn to a process for preparing a feed supplement, which is known in prior art; whereas, Group II, which is drawn to a feed supplement is likewise taught in prior art. Thus, there is no special technical feature that unites the two inventions that satisfies a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, Applicants' reply of 6/23/08 to this action, to elect a single invention to which the claims must be restricted; is acknowledged and affirms the election, originally made in the reply mailed 10/17/07.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 68-75 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 10/17/07.

Response to Arguments

3. Applicant's arguments, filed 6/23/08, with respect to
- a. the rejection(s) of claim(s) 1, 34, 36 under 35 U.S.C. 112, second paragraph have been fully considered, in light of the cancellation of said claims and are persuasive. Therefore, the rejection has been withdrawn.
 - b. new claims 53-75 and the cancellation of claims 1-52 are acknowledged.
 - c. the rejection of claims 1-16, 25, 27-37 and 42-51 under 35 U.S.C. 103(a) have been fully considered, in light of the cancellation of said claims. However, new claims 53-67 drawn to the same process claims are rejected. Therefore, the rejection has been maintained, in view of the cited prior art of record, whereby this Office Action is made FINAL.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

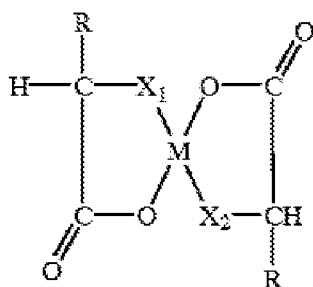
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

- 1. Determining the scope and contents of the prior art.
 - 2. Ascertaining the differences between the prior art and the claims at issue.
 - 3. Resolving the level of ordinary skill in the pertinent art.
 - 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
4. New claims 53-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu (US6197815, US`815 *in IDS*) and Hsu (US5504055, US`055) in view of Ericson et al. (US6716814, US`814).

5. Applicants' claims are drawn to a) a process for preparing feed supplement that promotes animal growth comprising the steps of preparing metal carboxylates, with the formula $M(RCOO)_2$ (with substituents as recited therein), preparing a metal aminoate, mixing the metal carboxylate and metal aminoate; b) a process for preparing feed supplement that promotes animal growth comprising the steps of mixing formic acid, butyric acid and methionine-hydroxy analog to form a mixture and mixing said mixture with a basic compound of a divalent metal, then removing water in both a) and b) form a dry product.

6. US'815 teaches a process for providing an animal feed additive by preparing metal amino acid chelates to facilitate and promote the growth of animals (column 1 lines 8-10). US'815 teaches metal salt complex produced by *blending a metal salt, an amino acid and an organic hydroxy acid in deaerated water*, said complex having the formula as shown therein (column 3 lines 28-47). US'815 teaches that the metal ions include water soluble salts of *inter alia* copper and zinc and the metal salts include *inter alia* water soluble carbonates, oxides and hydroxides (column 4 lines 29- 34), the organic acids include acids with one or more carboxyl or one or more hydroxyl groups, and the amino acids include glycine and methionine (column 4 lines 36-51). US'815 teaches that the structure of the metal amino acid chelate, a snapshot is as shown in next page, where the organic acid may substitute for some of the amino acid groups (column 5 lines 8-32). US'815 teaches that one of the chelating agent is amino acid and other is organic acid (column 5 lines 28-29), *which increases stability of the chelates* (column 5 lines 33-34).



Where $X_1 = \text{NH}_2$ and $X_2 = \text{NH}_2$ or O. M is a metal ion and R a carbon containing compound derived from the amino acid or organic acid with or without the addition of $-\text{S}$, $-\text{NH}_2$, $-\text{COOH}$ or other groups commonly making up amino acids or organic acids. There are two molecules of the chelating agent to 1 molecule of metal. A ring structure is formed between each of the chelating agents and the metal.

. US'815 teaches in working

examples the metal amino acid chelate in columns 5-8; where in Example III, calcium/malonic/lysine chelate was prepared, the mixture stirred until no more material would dissolve, the mixture filtered to remove undissolved materials, filtrate dried and subsequently the dry material is ground.

7. While, US'055 teaches metal amino acid chelate for improved plant growth, prepared by adding a metal salt to deaerated water, mixing the salt solution with a mixture of an amino acid and an organic acid (see abstract). US'055 teaches that alternatively, the chelate solution can be dried by standard processing techniques, where the *dried material* is converted to fine granules or powder (column 2 lines 41-42). The metals and metal salts of *inter alia* indicated are copper and zinc and oxides and hydroxides, thereof (column 2 lines 47-54). The organic acids include acids with one or more carboxyl groups and/or one or more hydroxyl groups (column 2 lines 54-55); while amino acids, include *inter alia*, glycine and methionine (column 3 line 1). US'055

teaches the structure discussed *supra* by US`815. The working examples in columns 3-7 indicate the composition as set forth by the structure, where in Example VI, calcium/malonic/lysine chelate was prepared, the mixture stirred until no more material would dissolve, the mixture filtered to remove undissolved materials, filtrate dried and subsequently the dry material is ground.

8. The instant claims differ from the US`815 and US`055 in the recitation of the (a) stages of (a1) preparing a "metal carboxylate", preparing an "metal aminoate", mixing the metal carboxylate with the metal aminoate as animal feed; (a2) reacting the carboxylic acid with the amino acid then the resulting mixture neutralized with the basic compound of a divalent metal comprising Zn^{2+} or Cu^{2+} , the water removed in either (a1) or (a2) and the dry material is the animal feed supplement, (b) the use of specific salts and/or oxides of the metal compounds, (c) the specific acids, (d) the use of a vacuum and temperature ranges, (e) specific molar or weight ratios, (f) that the bioavailability of the divalent metal in the dry metal complex is different than the bioavailability of the divalent metal in either the dry metal carboxylate or the dry metal aminoate.

9. The differences (a), (b), (c) of the stepwise addition or steps recited in the instant claims using specific acids, such as formic acid or butyric acid and forms of the divalent metal compounds are not patentable, in light of the teachings of the prior art. At the time of Applicant's invention, one of ordinary skill in the art looking for a method to incorporate metals into amino acids with organic acids, would have found it obvious to start with the teachings of the cited prior art references and use alternate organic acids, like formic acid or butyric acid, and

react these with well-known art amino acids, such as methionine or glycine to obtain well-known metal complexes.

10. An artisan of ordinary skill would have been motivated to start with the teachings of the cited prior art references and use alternate materials, to reap the benefit of metal chelation known in the art. Illustratively, US'814 has taught that a metal ion of valency of +2 can be bonded by four bonds when fully chelated, where it is possible for the metal ion to be bonded to two carboxyl oxygen of a carboxylic acid and to the amino group and carboxyl of an amino acid (column 2 lines 33-47), where the molar ratios of ligand to metal can be 1:1 to 4:1 (column 1 lines 65-66). US'814 teaches the chelation of metal with suitable ligands enhances solubility. The artisan then would reach a reasonable expectation of producing other metal chelates, for use in the enhancement of growth and absorption in both plants and non-human animals. The claim would have been obvious because the substitution of one known element for another would have yielded predictable results to one of ordinary skill in the art at the time of the invention, *as in the instant materials of formic acid and butyric acid.*

11. As to the difference (f) that the bioavailability of the divalent metal in the dry metal complex is different than the bioavailability of the divalent metal in either the dry metal carboxylate or the dry metal aminoate is not unobvious, in light of the teachings of the cited prior art references. One of ordinary skill in the art would have found it obvious to infer that the metal complex using amino acid and carboxylic acid would have rendered the metal to be administered more efficiently and then subsequently ingested for better absorption, since the metal/s are in a complex form for better bioavailability, as compared to the metal and/or metal salt, which is not in the complex form.

12. An artisan would be motivated to complex metals with amino acids and/or carboxylic acids to reap the benefit of better stability over an extended period of time and the adverse effects of the addition of other additives thus facilitating and promoting growth by increasing metallic ion uptake (US`815 col.2 ll52-68), and reach a reasonable expectation of being able to make other metal complexes with other amino acids and other carboxylic acids.

13. Absent the showing of criticality and/or unexpected beneficial results, the instant metal complexes using the instant materials and reaction parameters are considered equivalent to the amino acid-carboxylic acid metal chelates, with equivalent attributes of bioavailability, taught in the cited prior references.

14. The differences (d) and (e) on the use of vacuum/ reaction temperatures and the specific ratios are optimization techniques, absent a showing of criticality and/or unexpected beneficial results, that are within the purview of an artisan. One of ordinary skill in the art would have found it obvious to optimize the workable ranges and material ranges that would give beneficial results, including adapting methods of drying, as in the use of vacuum or turbine stirrers to promote drying that are well-known art techniques. Optimizing such processes is prima facie obvious because an ordinary artisan would be motivated to use known processes from the art to make the process more efficient or explore economical advantages over the other. Merely modifying the process conditions is not a patentable modification absent a showing of criticality. In re Aller, 220 F.2d 454, 105 U.S.P.Q. 233 (C.C.P.A. 1955). In applying known technique, *such as the use of intensifier turbines, absorbents or vacuum*, to a known device (method, or product) ready for improvement to yield predictable results, the claim would have been obvious because a particular known technique was recognized as part of the ordinary capabilities of one skilled in

the art. The Supreme Court in *KSR* noted that if the actual application of the technique would have been beyond the skill of one of ordinary skill in the art, then the resulting invention would not have been obvious because one of ordinary skill could not have expected to achieve it.

15. No claims are allowed.

- Applicants argue that the instant carboxylate-aminoate metal complex is not the same as the metal complexes taught in the cited prior art references of record, therein citing the absorption/bioavailability of the instant carboxylate-aminoate metal complex using examples in the specifications. Applicants further argue that the differences stated in the Office Action were made, "without citation of authority".

However, Applicants have not refuted that the instant carboxylate-aminoate metal complex is equivalent to the cited prior art references metal complex, which engages the use of the equivalent materials (i.e. acid, amino acid and metal salts) to form a metal complex. Albeit the nomenclature of "carboxylate-aminoate metal complex" is recited in the claims, the instant process has the equivalent reaction steps using equivalent materials that would effectuate to equivalent metal complex, that is geared towards the same utility as feed supplement. Applicants have not provided any showing or arguments to the contrary. Applicants merely allege that the rejections were made "without citation of authority", without any supporting argument; and allege that the rejections are conclusory statements. Applicants base their arguments on examples in the specifications as to absorption and bioavailability- but provide no comparative showing relative to those in the cited prior art.

Conclusion

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Louisa Lao whose telephone number is (571)272-9930. The examiner can normally be reached from 8:00am to 8:00pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Sullivan can be reached on 571-272-0779. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

0811-081222008 mll

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Examiner
TC1600 GAU 1621

/Karl J. Puttlitz/
Primary Examiner, Art Unit 1621